Summary Statement Raider Incident August 2, 2017
Pilot In Command: William Fell

N971SK was started approximately 07:00AM on Aug 2, 2017 to complete an envelope expansion experimental test flight mission.

The first test completed was an active vibration control script file test. This was completed on the ground and included a rotor RPM sweep from 105% down to 85% and back to 105%. This test went according to plan and telemetry cleared us to ground taxi for flight.

Prior to beginning taxi the chase aircraft helicopter notified us that he had a hydraulic leak and had to scrub the mission. We coordinated over the radio to change the mission profile to preclude the need for rotary wing chase. At this point we initiated ground taxi toward the runway.

I applied collective up to get the aircraft light on the wheels and forward cyclic to initiate a roll forward. The aircraft rolled toward the runway like on any other flight. During our roll we were notified the chase aircraft was also the search and rescue (SAR) aircraft. This information caused me to stay on the ground, rather than lift off shortly after initiating the roll as would be more normal. My intent was to continue to the runway and then lower the collective while we waited to insure we had another aircraft for SAR. Prior to getting to the runway the aircraft rolled left while still on the ground. It felt like about three degrees of roll change but could have been less attitude change with higher rate/acceleration. My decision was to lift into the air and stabilize the aircraft. I applied collective to achieve about a 5-ft above the ground hover. After lifting off the aircraft rolled quickly left and right with 2-3 roll reversals of increasing roll attitudes in excess of an estimated 60° bank angle. I was making roll inputs and trying to calm the aircraft but did not feel I could back out of the control loop due to the excessive roll rates. The roll rate was faster than I've experienced in any aircraft. After 2-3 roll reversals I saw debris in front of me and made the decision to land despite being out of control. As the aircraft rolled from a large right bank angle to the left I timed a collective input to land. I lowered the collective from hover power to full down. The gear spread and blades intermeshed.

Once on the ground I moved the engine switch from FLY to FUEL OFF and placed the battery switch off completing the emergency shutdown. We were able to egress the aircraft through the normal primary ingress/egress door.

I went to the medical facility at Pratt and Whitney which is run by Jupiter Medical Center and provided blood and urine samples.

[redacted]

WILLIAM C. FELL JR
CERT NUMBER: [redacted]

[redacted]

John Grabb
[redacted]

8 Aug 2017 - S-97 Copilot statement

- Completed the pre-flight brief and engine start for the S-97 with no issues noted.
- Active Vibration Control (AVC) system checkout completed as expected and we were cleared by Telemetry (TM) for forward flight.
- As we started to taxi on 'A' taxiway toward the runway, our rotary wing chase aircraft called over our TM frequency to tell us they had a nose landing gear hydraulic leak and would not be able to fly.
- Bill Fell (pilot) and I discussed flying without the rotary wing (low speed) chase. We decided that because we intended to engage the propeller for the first time in forward flight that we needed a chase aircraft to monitor the engagement.
- During the pre-flight brief the test team discussed the option of engaging the prop. in a hover and transition to forward flight (high speed) to be chased by our fixed wing chase aircraft.

- We discussed the hover prop. engagement with the test director in TM and decided as a team to proceed with the flight using a hover engagement.
- As we resumed our taxi, TM called to tell us to hold while they arranged ~~for~~ for a SAR platform (our primary SAR was the rotary wing chase) to cover the flight as our rotary wing chase was down.
- We held just short of the runway on taxiway "A" headed North and attempted to contact our fixed wing chase on the TM frequency and tower frequency.
- While still on the ground, the aircraft developed a left wing down roll and the right landing gear extended/left the ground.
- As the pilot corrected and lifted the aircraft off the ground, a rapid right roll developed followed shortly (less than a second) by a rapid left roll.
- After multiple reversals (not sure how many) the aircraft impacted the ground in a level attitude, the landing gear collapsed and the aircraft came to rest on the airframe in a level attitude.
- We secured the engine and egressed the aircraft.

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